Light yields for candidate NOvA extrusions (WBS 2.4.2)

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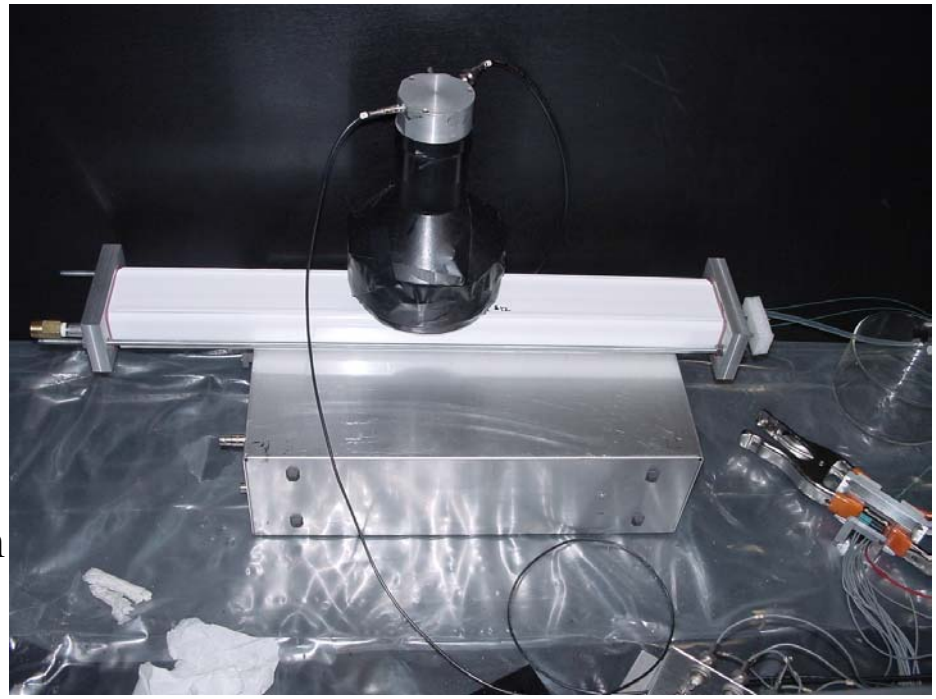
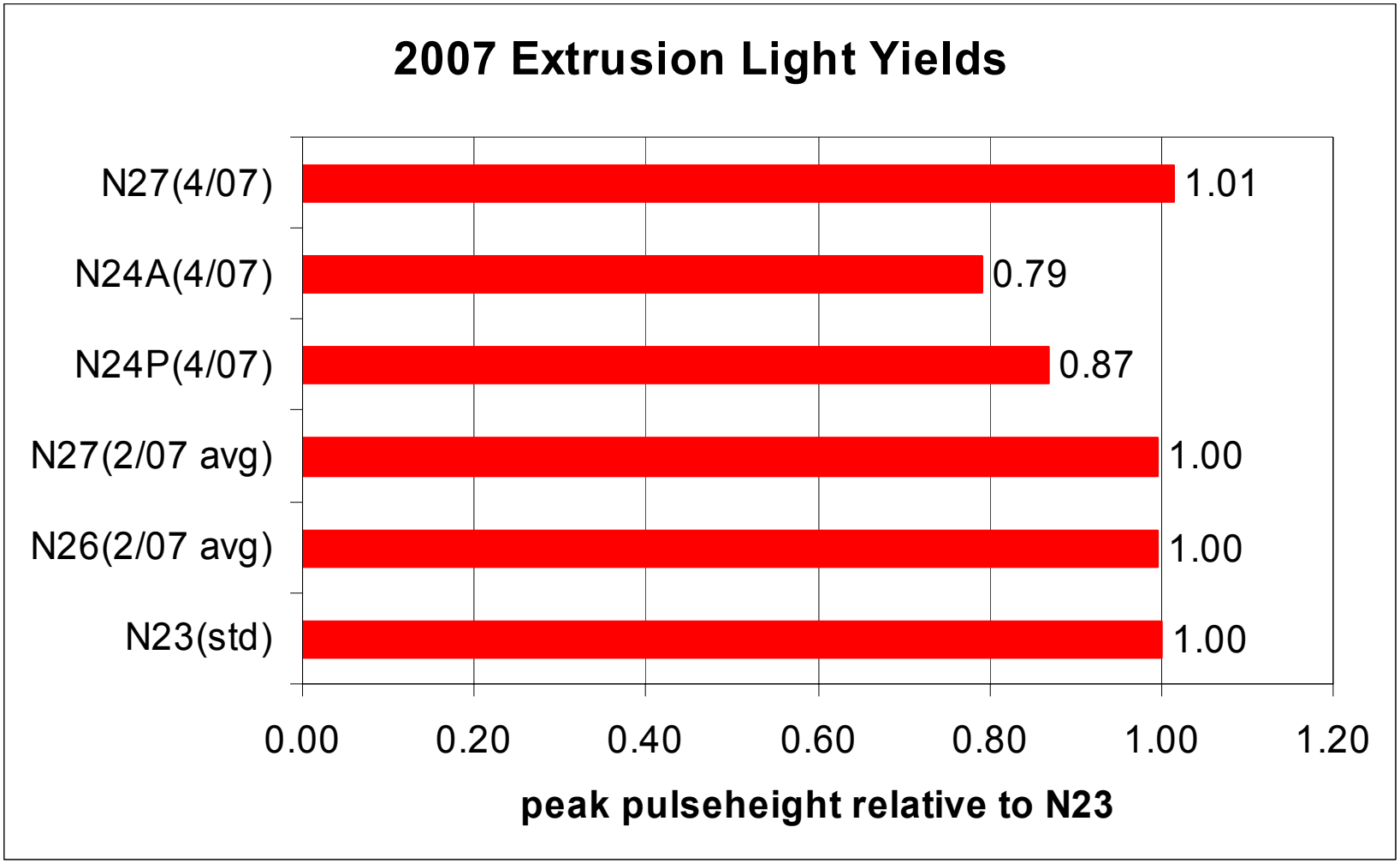
NOvAcell test cell

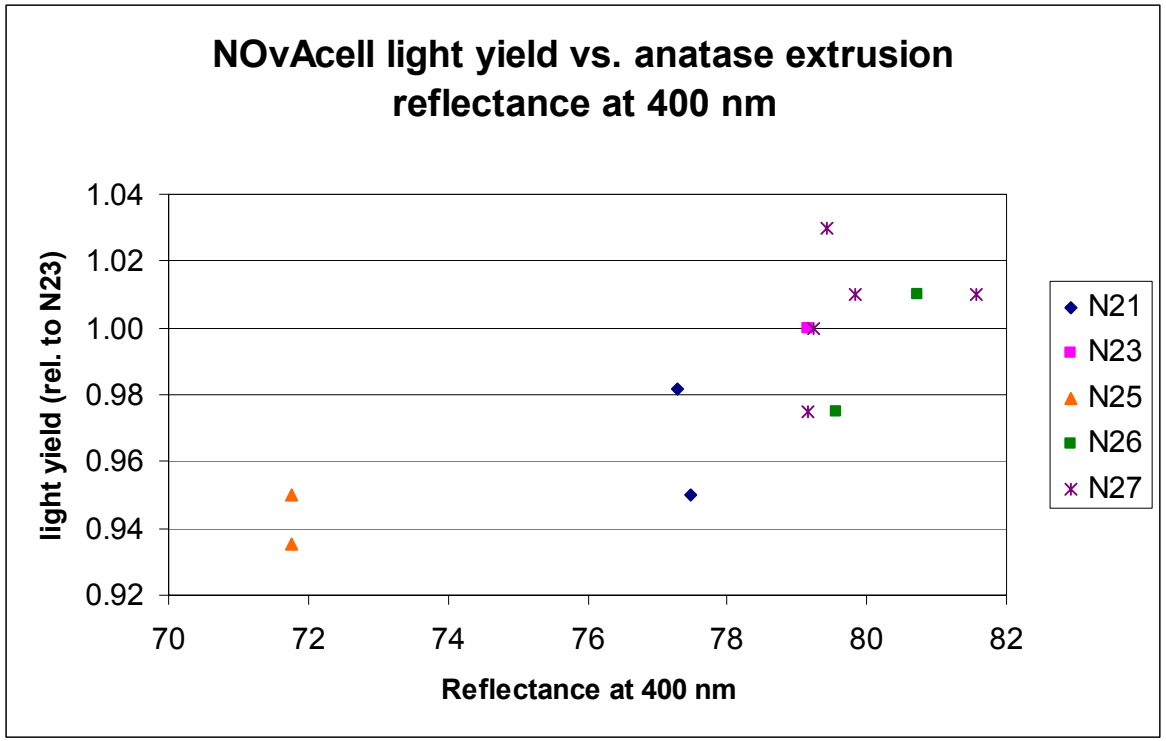
- Short version of NOvA detector single (1/16) cell
  - Same cross section
  - 60 cm length
  - Trigger on muons at center
  - 2x 1.2 m long, 0.8 mm diameter WLS fibers
    - No loop; far ends rough cut
  - MINOS M16 PMT
    - 12% < QE < 15% @520 nm
- Relative measurements mean differences between true NOvA cells and this testcell are irrelevant



Light yield – candidate extrusions



Light yield vs. reflectance



- Measurement of reflectance at production site predicts performance of extrusion in NOvA — Quality Assurance test

Summary

- Light yield performance of NOvA extrusions is dependent upon extrusion formulation
- Light yield performance correlates with extrusion reflectivity
- Measurement of reflectivity at extrusion factory is a quality assurance test for acceptance/rejection of product